

SPECIFICATIONS**TITLE OF THE INVENTION**

File and Binding Member

BACKGROUND OF THE INVENTION AND RELATED ART STATEMENT

5 This invention relates to a file and a binding member for filing papers or leaves.

 A file for filing papers or leaves, in other words, refills or other variety of materials as sort of a sheet has been used extensively. Widely known is a file so called a 10 ring file in which a binding member constituting a ring-shaped body is mounted on a cover sheet body, for example, described in the following patent document 1 or the following patent document 2. The file is established by connecting a base portion from which an openable and 15 closable ring-shaped body stands with an inner face of a rear cover sheet.

Patent document 1: Patent laid open No. 2002-178678

Patent document 2: Patent laid open No. 2000-343867

20 **SUMMARY OF THE INVENTION**

 For the above-mentioned file, a maximum number of the papers or leaves that can be filed is regulated by a width of a scroop of the cover sheet body. Practically, however, it is not possible to file papers or leaves of a volume 25 equal to the width of the scroop. In most cases, since a distal end side, namely, a front cover sheet side of the ring-shaped body of the binding member is curved or bent so as to form an arch shape, a maximum number of the papers or

leaves that can be filed is regulated by a length of the binding member locating at a proximal end side, namely at a rear cover sheet side behind the arch shape. Further, the ring-shaped body is usually openable and closable, a maximum 5 number of the papers or leaves that can be filed is regulated by a position where the ring-shape body opens or closes. In addition, if the ring-shaped body is formed so as to be accommodated within a width of the scroop, the maximum number of the papers or leaves that can be filed decreases. 10 It is a matter of course that a size of the ring-shaped body can be made to be large enough to increase the maximum number of the papers or leaves that can be filed. With this arrangement, however, a distal end portion side of the ring-shaped body might protrude from the front cover sheet and 15 the protruded portion of the ring-shaped body might interfere other file, resulting in some trouble in storing files, for example, when a plurality of files are laid side by side.

In consideration of the above problems the present 20 claimed invention intends to provide a ring file and a binding member that can preferably file more sheets of papers or leaves.

In order to solve the above problems, the present claimed invention is a file in which a binding member 25 constituting a ring-shaped body to file papers or leaves is mounted on a cover sheet body and a pair of hinges are arranged at predetermined positions of the ring-shaped body and a portion ahead of the hinges of the ring-shaped body

can be inclined. In accordance with the arrangement, the ring-shaped body can be made large so as to be able to file a necessary number of papers or leaves and the ring-shaped body will not disturb filing the papers or leaves if a

5 distal end side of the ring-shaped body is folded as required.

For the ring-shaped body comprising a pair of openable and closable ring chips wherein each distal end portion of the ring chips is engaged to close a space between the ring

10 chips, if a first hinge is arranged on one of the ring chips and an engaging arrangement to engage each distal end portion of the ring chips in a relatively rotatable manner is established to be a second hinge, an arrangement of the ring-shaped body can be avoided from being complicated.

15 More concretely, it is preferable that the engaging arrangement is so arranged that at the distal end portion of one ring chip formed is a projecting portion that projects toward the distal end portion of the other ring chip when the space between the ring chips is closed, at the distal

20 end portion of the other ring chip formed is an axial hole that accommodates the projecting portion when the space between the ring chips is closed, and each distal end portion of the ring chips is relatively rotatable by a concavo-convex engagement of the projecting portion and the

25 axial hole by making use of the projecting portion as a rotational axis and the axial hole as a bearing.

Further, if a notch is formed by cutting off at least a part of an inner face of the axial hole so that an opening

edge of the axial hole expands toward a direction to which the ring chips open or close, the projecting portion can be easily guided to the axial hole when the space between the ring chips is closed and the projecting portion can be 5 easily separated from the axial hole when the space between the ring chips is opened.

In order to make it possible to position the projecting portion inserted into the axial hole preferably when the space between the ring chips is closed, it is 10 preferable that a distal end portion of the projecting portion is treated to be sphere.

In order to make it possible to guide the projecting portion into the axial hole preferably when the space between the ring chips is closed, it is preferable that a 15 radius face in a partial sphere shape is formed at a projecting end of one of the ring chips and if a radius face in a partial sphere shape is formed at a projecting end of the ring chips, a binding hole is difficult to get stuck with the second hinge when dealing with papers or leaves.

20 In addition, in order to make it possible to lock the hinge at a certain angle it is preferable that a stopper is further provided to retain an angle of the hinge. In accordance with this arrangement, a situation such that the distal end portion ahead of the hinge of the ring-shaped 25 body is unexpectedly inclined or stands unexpectedly so as to hook other file or the like can be avoided and papers or leaves can be stored effectively and handled preferably as well.

In order to set the angle to lock the hinge appropriately it is preferable that the stopper consists of a pushing portion arranged on one of the members constituting the ring-shaped body through the hinges and a 5 surface of the other member on which a concave portion is arranged, and the pushing portion retains the angle of the hinges by being inserted into the concave portion with applying a pushing force to the surface of the other member. In accordance with this arrangement, it is possible to set 10 an angle of locking the hinge at discretion by appropriately setting the position of the concave portion. In addition, when a force above a certain level is applied in a locked state, the pushing portion makes a sliding movement on the surface of the other member and deflects from the concave 15 portion and then a locked state is released. In accordance with the arrangement, it is possible for a user to lock or unlock the hinge preferably.

In order to lock the hinge in an orthotropic state it is preferable that the stopper has the concave portion at 20 the end portion of the other member and retains the angle of the hinges in an orthotropic state by inserting the pushing portion into the concave portion.

In order to make it possible to set a specification of the stopper at discretion it is preferable that the pushing 25 portion consists of an elastic member and an abutting member, wherein one portion of the elastic member is fixed to a predetermined position of one of the members and the other portion of the elastic member supports the abutting member

and the abutting member makes an abutting contact with the other member. In accordance with this arrangement, it is possible to set an elastic strength of the elastic member and a shape of the abutting member appropriately. Further 5 strength to hold the hinge can be set appropriately by setting a position and a shape of the concave portion arranged on the other member appropriately. More concretely, it is preferable that the elastic member consists of a coiled spring and the abutting member consists of a 10 spherical body.

In addition, if the ring-shaped body comprises a pair of standing post portions extending generally vertically to a mounting face of the cover sheet body on which the binding member is mounted and a curved or bent arch portion arranged 15 to connect each distal end of the standing post portions, and a hinge is arranged at each of a connected portion of the standing post portion portion and the arch portion respectively, the hinge will not disturb filing papers or leaves.

20 If at least one of the standing post portions extends in a linear manner, it is possible to file papers or leaves preferably by making use of the standing post portions.

If the cover sheet body includes a rear cover sheet on an inner face of which the binding member is mounted, a 25 scroop continuing to the rear cover sheet and a front cover sheet continuing to the scroop and facing to the rear cover sheet, and a pair of the hinges are arranged at a position separated from the inner face of the rear cover sheet by a

distance generally corresponding to a width of the scroop, it is possible to file papers or leaves of numbers whose thickness corresponds to a width of the scroop.

In addition, if an opening that allows a portion of 5 the ring-shaped body ahead of the hinge to pass when the portion ahead of the hinge of the ring-shaped body is not inclined and that prevents the portion ahead of the hinge of the ring-shaped body from passing when the portion is inclined is formed on the front cover sheet, it is possible 10 to prevent the cover sheet body from opening by inclining the portion ahead of the hinge of the ring-shaped body when the cover sheet body is folded and closed.

BRIEF DESCRIPTION OF THE DRAWINGS

15 Fig. 1 is a general perspective view of a file in accordance with one embodiment of the present claimed invention.

Fig. 2 is a perspective view of a part of the file.

Fig. 3 is a side view of a part of the file.

20 Fig. 4 is a plane view of a part of the file.

Fig. 5 is a plane view of a ring-shaped body constituting a binding member.

Fig. 6 is a cross-sectional view of a part of the ring-shaped body.

25 Fig. 7 is a plane view of a part of the file.

Fig. 8 is a partial front view showing an opening to be formed on the front cover sheet.

Fig. 9 is a plane view of a part of a file in

accordance with another embodiment of the present claimed invention.

Fig. 10 is a perspective view of a part of a ring-shaped body.

5 Fig. 11 is a perspective view of a part of the ring-shaped body.

Fig. 12 is a cross-sectional view of a part of the ring-shaped body.

Fig. 13 is a plane view of a part of the ring-shaped
10 body.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

An embodiment of the invention will be described in detail with reference to the accompanying drawings. Fig. 1 through Fig. 4 show a file in accordance with the embodiment of the present claimed invention. The file is so arranged that a binding member 1 is mounted on a cover sheet body 2.

The cover sheet body 2 is, for example, integrally formed with a rear cover sheet 21, a scroop 22 continually formed with a side edge of the rear cover sheet 21 and a front cover sheet 23 continually formed with a side edge of the scroop 22. The binding member 1 is mounted on an inner face of the rear cover sheet 21 of the cover sheet body 2 near the scroop 22. An opening 24 formed on the front cover sheet 23 will be described later.

The binding member 1 constitutes a ring-shaped body to file papers or leaves. The binding member 1 comprises a pair of ring chips 11, 12 and an open-close mechanism 13 that

makes it possible to open or close a space between a distal end portion of the ring chip 11 and a distal end portion of the ring chip 12. A pair of the ring chips 11, 12 form a general U-shape standing generally vertically from the inner

5 face of the rear cover sheet 21 as a face on which the binding member 1 is mounted in plane view in a condition that the space between the ring chips 11 and 12 is closed so as to be a primary constituting element of the ring-shaped body. Each of a pair of the ring chips 11, 12 projects from

10 a base plate 131 or 132 respectively. A pair of the base plates 131 and 132 each of which is separately formed are combined each other in a relatively rotatable manner at each side edge portions near the scoop 22. The open-close mechanism 13 that opens or closes the space between the ring

15 chip 11 and the ring chip 12 comprises mainly a pair of the base plate 131, 132. More specifically, when the base plate 131 makes a rotary movement around the side edge portion of the base plate 131 so as to be separated from other base plate 132, the space between the distal end portion of the

20 ring chip 11 and the distal end portion of the ring chip 12 opens. When the base plate 131 makes a reversed rotary movement so as to overlap with the other base plate 132, the space between the distal end portions of the ring chips 11, 12 closes. A pre-load is previously applied toward a

25 direction so as to separate the base plate 131 from the base plate 132 by an urging means (not shown in drawings) such as a spring. The base plate 131 is rotated, for example, by operating an operating lever 133 with an up and down

movement. The open-close mechanism 13 is not limited to the above-described embodiment and may be any other existing mechanism. For example, a pair of the ring chips 11, 12 may be so arranged that a proximal end portion of the ring chip 11 is fixed to a base plate and a proximal end portion of other ring chip 12 is rotatably mounted on the base plate through a bearing, and a part of the proximal end portion of the ring chip 12 is provided with a portion displaced from a rotational axis of the ring chip 12 and the part is urged by 5 a leaf spring.

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As shown in Fig. 5, the first ring chip 11 as one of the ring chips 11, 12 comprises a standing post portion 111 whose proximal end is fixed to the base plate 131 and an arch portion 112 extending out from a distal end of the 15 standing post portion 111. The standing post portion 111 is in a general cylinder and extends generally vertical (strictly speaking, a little inclined toward the scoop 22 in plane view) to the inner face of the rear cover sheer 21 when the space between both of the ring chips 11 and 12 is 20 closed. The arch portion 112 is a curved arch-shaped member whose cross-sectional view is a circle. The distal end of the standing post portion 111 and a proximal end of the arch portion 112 are starved jointed. The distal end of the standing post portion 111 and the proximal end of the arch 25 portion 112 are connected with inserting a pin 113 that passes through an overlapped portion of the standing post portion 111 and the arch portion 112. The distal end of the standing post portion 111 and the arch portion 112 are

relatively rotatable around the pin 113. Namely, a first hinge is established by interposition of the pin 113. An axial direction of the pin 113 is generally parallel to the inner face of the rear cover sheet 21 when the space between 5 the ring chips 11 and 12 is closed. As a result of this, as shown in Fig. 7, the arch portion 112 can take both a standing position R wherein the arch portion 112 exists on generally the same plane as that of the standing post portion 111 and the standing post portion 111 and the arch portion 112 form a J-shape in plane view and an inclined 10 position F wherein the arch portion 112 is rotated approximately 90 degrees from the standing position R so as to be generally parallel to the inner face of the rear cover sheet 21.

15 The second ring chip 12 as other ring chip comprises a standing post portion 121 whose proximal end is fixed to the base plate 132. The standing post portion 121 is in a general cylinder and extends in a linear manner generally vertical to the inner face of the rear cover sheer 21 when 20 the space between both of the ring chips 11 and 12 is closed. The standing post portion 121 of the second ring chip 12 locates at a lateral side, namely, an inverse side to the scroop 22 of the standing post portion 111 of the first ring chip 11. Usually in order to file papers and leaves in the 25 file, the standing post portion 121 of the second ring chip 12 is inserted into the papers or leaves to be filed and then the space between the first and the second ring chips 11 and 12 is closed.

As shown in Fig. 6, a distal end of the arch portion 112 of the first ring chip 11 has a projecting end 112a relatively projecting toward an extending direction that is formed by cutting off one side end of the distal end thereof.

5 A distal end of the standing post portion 121 of the second ring chip 12 also has a projecting end 121a relatively projecting toward an extending direction that is formed by cutting off one side end of the distal end thereof. A projecting portion 112b whose shape is generally a cylinder

10 is formed at a side face of one of the projecting ends (the projecting end 112a locating at a distal end of the arch portion 112 in this embodiment). The projecting portion 112b is not limited to a shape of a cylinder, and it may be a shape of a cone. It is preferable that the projecting

15 portion 112b projects toward the inverse side to the scoop 22. In addition, an axial hole 121b that can accommodate the projecting portion 112b is formed at a side face of the other projecting end (the projecting end 121a locating at the distal end of the standing post portion 121). In this

20 embodiment, a notch 121c is formed by cutting off at least a part of an inner face of the axial hole 121b so that an opening edge of the axial hole 121b formed on the projecting end 121a expands toward a direction to which the ring chips 11 and 12 open or close. In this embodiment formed is the

25 tapered notch 121c that inclines from a predetermined portion on an inner face of the axial hole 121b formed on the projecting end 121a of the standing post portion 121 toward an extending direction of the standing post portion

121, in other words, that inclines toward a direction of the arch portion 112. Then when the space between the ring chips 11 and 12 is closed, the distal end of the arch portion 112 moves along a direction to which the ring chips 11 and 12

5 open or close so as to approach the distal end of the standing post portion 121. In this case, the projecting end 112a locating at the distal end of the arch portion 112 overlaps with the projecting end 121a locating at the distal end of the standing post portion 121 and the projecting

10 portion 112b formed at the projecting end 112a is accommodated into the axial hole 121b formed at the projecting end 121a. In case that the projecting portion 112b and the axial hole 121b make a concavo-convex engagement as mentioned above, the distal end of the arch

15 portion 112 as the distal end portion of the first ring chip 11 and the distal end of the standing post portion 121 as the distal end portion of the second ring chip 12 are relatively rotatable by making use of the projecting portion 112b as a rotational axis and the axial hole 121b as a

20 bearing. In other words, an engaging arrangement established by the concavo-convex engagement comprising the projecting portion 112b and the axial hole 121b is to be a second hinge. An axial direction of the projecting portion 112b and an axial center direction of the axial hole 121b are generally

25 parallel to the inner face of the rear cover sheet 21 when the space between the ring chips 11 and 12 is closed. As a result of this, the arch portion 112 can take both a standing position R wherein the arch portion 112 exists on

generally the same plane as that of the standing post portion 121 and an inclined position F wherein the arch portion 112 is rotated approximately 90 degrees from the standing position R so as to be generally parallel to the 5 inner face of the rear cover sheet 21.

As mentioned above, each distal end of a pair of the standing post portions 111, 121 is connected with the arch portion 112 so as to form the ring-shaped body. A portion of the ring-shaped body ahead of the hinge, namely, the arch 10 portion 112 is so arranged to be inclinable if necessary. A shape and a size of the standing post portion 111, 121 are so set that each distal end of a pair of the standing post portion 111, 121 locates separated from the inner face of the rear cover sheet 21 by a distance generally 15 corresponding to a width of the scroop 22 when the space between the ring chips 11 and 12 is closed. In other words, a pair of the hinges locate at a position separated from the inner face of the rear cover sheer 21 by a distance generally corresponding to a width of the scroop 22 when the 20 space between the ring chips 11 and 12 is closed.

In addition, in this embodiment as shown in Fig. 8, an opening 24 is arranged on the front cover sheet 23. A shape of the opening 24 is so formed that the arch portion 112 is included in a front view in the standing position R when the 25 arch portion 112 is not inclined and at least a part of the arch portion 112 is not included in a front view in the inclined position F when the arch portion 112 is inclined.

In other words, the opening 24 is so formed that the arch

portion 112 is allowed to pass through the opening 24 smoothly when the arch portion 112 is not inclined, while the arch portion 12 is not allowed to pass through the opening 24 smoothly when the arch portion 112 is inclined.

5 More specifically, a part of an opening edge of the opening 24 generally corresponding to the inclined arch portion 112 in a front view protrudes inward to form a tongue 241 and the tongue 241 blocks the arch portion 112 from passing through the opening 24 by making an abutting contact with a

10 predetermined portion of the inclined arch portion 112. The tongue 241 is formed, for example, in an area of the inverse side to the scoop 22 of the opening 24. With this arrangement, it is possible to effectively prevent the cover sheet body 2 from opening improperly by a process of folding

15 the cover sheet body 2 so as to approach the rear cover sheet 21 to the front cover sheet 23 in a condition the arch portion 112 is not inclined, followed by a process of inclining the arch portion 112. In order to access the filed papers or leaves, to file papers or leaves or to remove

20 filed papers or leaves, the front cover sheet 23 may be opened after the arch portion 112 is rotated to the standing position R.

With this embodiment, since the file in which the binding member 1 constituting the ring-shaped body to file

25 papers or leaves is mounted on the cover sheet body 2 is so arranged that a pair of the hinges are arranged at the predetermined position of the ring-shaped body and the arch portion 112 as the portion ahead of the hinge of the ring-

shaped body can be inclined, the ring-shaped body can be made large, namely a length of the stand post portions 111, 112 is elongated so as to be able to file a necessary number of papers or leaves and the ring-shaped body will not 5 disturb filing the papers or leaves if the arch portion 112 locating at a distal end side of the ring-shaped body is folded as required.

Since the ring-shaped body is so arranged to comprise a pair of openable and closable ring chips 11, 12 wherein 10 each distal end portion of the ring chips 11, 12 is engaged to close the space between the ring chips 11 and 12, the first hinge is arranged on one of the ring chips and the engaging arrangement to engage each distal end portion of the ring chips 11, 12 in a relatively rotatable manner is 15 established to be a second hinge, an arrangement of the ring-shaped body can be avoided from being complicated.

since the engaging arrangement is so arranged that at the distal end portion of one ring chip formed is the projecting portion 112b that projects toward the distal end 20 portion of the other ring chip when the space between the ring chips 11 and 12 is closed, at the distal end portion of the other ring chip formed is the axial hole 121b that accommodates the projecting portion 112b when the space between the ring chips 11 and 12 is closed, and each distal 25 end portion of the ring chips 11 and 12 is relatively rotatable by the concavo-convex engagement of the projecting portion 112b and the axial hole 121b by making use of the projecting portion 112b as a rotational axis and the axial

hole 121b as a bearing, it is possible to integrally form the engaging arrangement for closing the space between the distal end portions of the rings chips 11, 12 and the second hinge, thereby to simplify the arrangement and to reduce a 5 number of components.

Further, since the notch 121c is formed by cutting off at least a part of an inner face of the axial hole 121b so that the opening edge of the axial hole 121b expands toward the direction to which the ring chips 11, 12 open or close, 10 the projecting portion 112b can be easily introduced to the axial hole 121b when the space between the ring chips 11, 12 is closed and the projecting portion 112b can be easily separated from the axial hole 121b when the space between the ring chips 11, 12 is opened.

15 In addition, since the ring-shaped body comprises a pair of the standing post portions 111, 121 extending generally vertically to the mounting face of the cover sheet body 2 on which the binding member 1 is mounted and the curved or bent arch portion 112 arranged to connect each 20 distal end of the standing post portions 111, 121, and the hinge is arranged at boundaries between each standing post portions 111 and 112 and the arch portion 112 respectively, the hinge will not disturb filing papers or leaves.

Since at least the standing post 121 of the second 25 ring chip 12 that is one of the standing post portions 111, 121 extends in a linear manner, it is possible to file papers or leaves preferably by making use of the standing post 121.

Since the cover sheet body 2 includes the rear cover sheet 21 on the inner face of which the binding member 1 is mounted, the scoop 22 continuing to the rear cover sheet and the front cover sheet 23 continuing to the scoop 22 and 5 facing to the rear cover sheet 21, and a pair of the hinges are arranged at a position separated from the inner face of the rear cover sheet 21 by a distance generally corresponding to the width of the scoop 22, it is possible to file papers or leaves of numbers whose thickness 10 corresponds to the width of the scoop 22.

In addition, since the opening 24 that allows the arch portion 112 ahead of the hinge to pass when the portion ahead of the hinge is not inclined and that prevents the arch portion 112 ahead of the hinge from passing when the 15 arch portion 112 is inclined is formed on the front cover sheet 23, it is possible to prevent the cover sheet body 2 from being opened by inclining the portion locating ahead of the hinge when the cover sheet body 2 is folded and closed.

Next another embodiment of the present claimed 20 invention will be explained with referring to the drawings. A same reference numeral will be given to a component corresponding to the component of the above-described embodiment and an explanation will be omitted.

A file in accordance with another embodiment of the 25 present claimed invention is shown in Fig. 9 through Fig. 13. The file is so arranged that a binding member 10 for binding papers or leaves is mounted on a cover sheet body 2.

The binding member 10 has generally the same shape and

the same arrangement as that of the binding member 1 of the above embodiment except that a first hinge comprises a stopper ST that can lock an arch portion 112 at a standing position R as shown in Fig. 9. In addition, as shown in Fig. 5, Fig. 10(A) and Fig. 10(B), a radius face in a partial sphere shape is formed both at a projecting end 112d of the arch portion 112 as a distal end portion of the first ring chip 11 and at a projecting end 121d of a standing post portion 121 as a distal end portion of the second ring chip 12 and a relatively rotatable engaging arrangement is established so as to be a second hinge by making use of a projecting portion 112e that is a semi-sphere projection as a rotational axis and an axial hole 121e that is a concave whose shape corresponds to the shape of the projecting portion 112e as a bearing. 10 15

The stopper ST arranged on the first hinge is concretely explained with referring to Fig. 11(A) and Fig. 11(B). The stopper ST comprises a pushing portion P arranged in a standing post portion 111 side as one of the members 20 constituting the first ring-shaped body 11 and a surface of an end portion including a concave portion Q of the arch portion 112 as the other member, and the pushing portion P locks the arch portion 112 at the standing position R by inserting a distal end of the pushing portion P into the 25 concave portion Q with applying a pushing force from the pushing portion P to the arch portion 112. The pushing portion P comprises a coiled spring SP as an elastic member whose one end is supported by a bottom portion x of a

setting space X that is arranged in the standing post portion 111 and shown by a broken line in Fig. 11 (B) and a spherical body B as an abutting member set at the other end side of the coiled spring SP.

5 As shown in Fig. 12 as a side cross-sectional view, when the arch portion 112 is at the standing position R (Fig. 12 (A)), the spherical body B is in a state that a contact position p locates at the concave portion Q locating at the end portion of the arch portion 112 with elastically urged 10 by the coiled spring SP. When the arch portion 112 is inclined from the standing position R, the contact position p moves on the surface of the end portion of the arch portion 112 as shown in Fig. 12 (B). By the time the contact position p reaches a convex portion T adjoining the concave 15 portion Q, the end portion of the arch portion 112 pushes the pushing portion P so that the coiled spring SP is compressed by a force, which is felt like a resistance for a user of the file. When the arch portion 112 is further inclined so as to reach an inclined position F, the contact 20 position p climbs over the convex portion T and then moves to a side face of the second ring chip 12 and the coiled spring SP extends as shown in Fig. 12 (C). When the coiled spring SP extends, the above-mentioned resistance disappears and operational feeling becomes light at once. A series of 25 movement while the contact position p climbs over the convex portion T gives the user a comfortable click feeling by changing a condition of the coiled spring SP from a compressed state to an extended state. While changing a

state from the inclined position F to the standing position R, the same click feeling is given to the user by a movement that the contact position p climbs over the convex portion T and a force to extend the coiled spring SP leads the arch portion 112 to the standing position R as a locked state when the contact position p moves from the convex portion T toward the concave portion Q.

The second hinge of this embodiment constitutes an engaging arrangement in which the projecting end 112d as the distal end portion of the first ring chip 11 makes a sliding movement with keeping a condition to contact the standing post portion 121 so that the projecting portion 112e is lead toward the axial hole 121e as shown in Fig. 13 (A) when the space between the ring chips 11 and 12 is closed. Even though the projecting portion 112e is lead toward the axial hole 121e in a rather misaligned state, the half spherical projecting portion 112e whose distal end portion is treated to form a spherical surface is introduced to an inside of the axial hole 121e with keeping a contact with the axial hole 121e as shown in Fig. 13 (B). This arrangement makes it possible for the projecting portion 112e to be released from the axial hole 121e with ease in case the ring chips 11 and 12 are released to open the space between the ring chips 11 and 12.

For the file wherein the binding member 10 constituting the ring-shaped body for filing papers or leaves is mounted on the cover sheet body 2, the stopper ST that keeps the first hinge at a predetermined angle is

arranged so as to lock the first hinge. In accordance with the arrangement, a situation such that the arch portion 112 as the distal end portion of the ring-shaped body locating ahead of the hinge is unexpectedly inclined or stands

5 unexpectedly can be avoided and papers or leaves can be stored effectively and handled preferably as well.

Since the stopper ST comprises the pushing portion P arranged on the standing post portion 111 as one of the members constituting the ring-shaped body through the first

10 hinge and a surface of the arch portion 112 as the other member on which the concave portion Q is arranged wherein the pushing portion P retains the angle of the first hinge by being inserted into the concave portion Q with applying a pushing force to the surface of the arch portion 112, it is

15 possible to set an angle of locking the hinge at discretion by appropriately setting the position of the concave portion Q. In addition, since a locked state is released when a force above a certain level is applied in a locked state with the pushing portion P making a sliding movement on the

20 surface of the arch portion 112 and deflecting from the concave portion Q, it is possible for a user to lock or unlock the hinge preferably.

The stopper ST has the concave portion Q at the end portion of the arch portion 112 as the other member and the

25 ring-shaped body is retained at the standing position R by inserting the pushing portion P into the concave portion Q in order to lock the first hinge at the standing position R in an orthotropic state. With this arrangement, the first

hinge can be moved from the standing position R as the orthotropic state to the inclined position F as a bent state and vice versa with a less force compared with a case wherein an arrangement to retain the angle of the hinge by 5 making use of friction between members is adopted. In addition, there is no possibility of failing to retain the standing position R because of abrasion of contact portions due to continuous use and it is possible to lock the arch portion 112 as the other member preferably in spite of 10 continuous use.

Further, the pushing portion P constituting the stopper ST comprises the elastic member and the abutting member wherein one side of the elastic member is fixed to a predetermined portion of the standing post portion 111 and 15 the other side thereof supports the abutting member and the abutting member makes an abutting contact with the arch portion 112 as the other member. With this arrangement, it is possible to make an elastic strength of the elastic member and a shape of the abutting member appropriate by 20 setting up the elastic member and the abutting member respectively. Further, a strength of retaining the hinge, in other word a strength of locking can be set appropriately by setting up a shape of the concave portion Q arranged on the arch portion 112. More concretely, since the coiled spring 25 SP is used as the elastic member, it is possible to set up an elastic strength appropriately by setting up a specification of the coiled spring SP at discretion. In addition, since the spherical body B is used as the elastic

member, not only it is easy to mount the abutting member at the end portion of the coiled spring SP but also it is possible to receive a pushing force stably with which the arch portion 112 pushes the pushing portion P and to

5 transfer the force to the coiled spring SP preferably when inclining the arch portion 112 even though a direction of the force changes.

The second hinge in accordance with this embodiment is so arranged that the distal end portion of the projecting portion 112e is treated to be sphere in a semi-spherical shape in order to make positioning preferably so as to insert the projecting portion 112e into the axial hole 121e. In addition, the distal end portion of the projecting portion 112e and the axial hole 121e which are engaged are

10 15 each other treated to be sphere in order to make a relatively rotational movement of the second hinge smooth so as to incline the arch portion 112 preferably.

Further, the projecting end 112d of the first ring chip 11 is made to be a radius face in a partial spherical shape in order to guide the projecting portion 112e into the axial hole 121e preferably when closing the space between the ring chips 11 and 12. In addition, since the projecting ends 112d and 121d of a radius face in a partial spherical shape are arranged on both ring chips 11 and 12 respectively,

20 25 the second hinge is difficult to get stuck with a hole provided on papers or leaves so that papers or leaves can be dealt preferably when the binding member 10 is at the standing position R and the binding member 10 is difficult

to get stuck with a finger of a user or other object when the binding member 10 is at the inclined position F or the space between the ring chips 11 and 12 is open.

The present claimed invention is not limited to the 5 above-described embodiment. For example, a shape of the standing post portion or the arch portion of the ring chip is not limited to the embodiment. The arch portion may be in a bent shape. In addition, a concrete arrangement of the hinge is not limited to the above embodiment. It is a matter 10 of course that either the stopper arranged on the second hinge or the stopper arranged on both of the first hinge and the second hinge belongs to a technical scope of the present claimed invention.

The other concrete arrangement of the component is not 15 limited to the embodiment described in drawings and there may be various modifications without departing from the spirit of the invention.

As mentioned above, in accordance with the present claimed invention, it is possible to provide a ring file 20 that can preferably file much more sheet of papers or leaves. A conventional ring file is required to set a width of the scoop with considering a dimension of a distal end portion of the ring-shaped body, in other words, a dimension of the arch portion. However, in accordance with the present 25 claimed invention, a width of the scoop can be smaller due to an arrangement in which the arch portion can be made inclinable, thereby to improve efficiency of filing papers with a compact file.